WHAT IS CLAIMED IS:

1. A method for processing speech, comprising:

synthesizing a first filter having at least one or more pseudo-cepstral coefficients based on a set of linear predictive coding coefficients, a pseudo-cepstral coefficient being a parameter relating to a pseudo-cepstrum domain existing between the linear predictive coding domain and the line spectral frequency domain; and

processing one or more frames of speech using the first filter.

2. The method of claim 1, wherein the first filter emphasizes speech frequency components related to at least one formant based on the set of linear predictive coding coefficients and de-emphasizes speech frequency components related to at least one spectral valley based on the set of linear predictive coding coefficients.

3. The method of claim 2, wherein the first filter compensates for spectral tilt.

4. The method of claim 2, wherein the one or more pseudo-cepstral coefficients are derived based on the formula:

$$H_S(z) \cong ( P_M(z/\alpha_1)\, Q_M(z/\alpha_2) ) / A_M^2 (z/\beta);$$

wherein $P_M(z) = A_M(z) + z^{-(M+1)} A_M(z^{-1})$, $Q_M(z) = A_M(z) - z^{-(M+1)} A_M(z^{-1})$ and $\alpha_1$, $\alpha_2$ and $\beta$ are control parameters, and wherein $A_M(z)$ relates to a linear predictive coding transfer function and M is the order of the linear predictive coding transfer function.

5. The method of claim 4, wherein $0 < \alpha_1$, $0 < \alpha_2$ and $\beta < 1.0$.

6. The method of claim 4, wherein $\alpha_1 + \alpha_2 = \beta$.

7. The method of claim 2, wherein the one or more pseudo-cepstral coefficients are derived based on the formula:

$$H_S(z) \cong ( P_M(z/\alpha_1)\, Q_M(z/\alpha_2) ) / A_M(z/2\beta);$$

wherein $P_M(z) = A_M(z) + z^{-(M+1)} A_M(z^{-1})$, $Q_M(z) = A_M(z) - z^{-(M+1)} A_M(z^{-1})$ and $\alpha_1$, $\alpha_2$ and $\beta$ are control parameters, and wherein $A_M(z)$ relates to a linear predictive coding transfer function and M is the order of the linear predictive coding transfer function.

8. The method of claim 4, wherein $0 < \alpha_1$, $0 < \alpha_2$ and $\beta < 0.5$

9. The method of claim 5, wherein $\alpha_1 + \alpha_2 = 2\beta$.

10. The method of claim 2, wherein the one or more pseudo-cepstral coefficients are derived based on the formula:

$$H^{m}{}_{S}(z) \cong ( P_m(z/\alpha_1)\, Q_m(z/\alpha_2) ) / A_M(z/2\beta);$$

wherein $\alpha_1$, $\alpha_2$ and $\beta$ are control parameters, $P_m(z) = A_m(z) + z^{-(m+1)} A_m(z^{-1})$, $Q_m(z) = A_m(z) - z^{-(m+1)} A_m(z^{-1})$, and wherein $A_M(z)$ relates to a linear predictive coding transfer function and M is the order of the linear predictive coding transfer function, and wherein $A_m(z)$ is a second linear predictive coding transfer function based on $A_M(z)$, m is the order of $A_m(z)$ and $1 \leq m \leq M$.

11. The method of claim 10, wherein $0 < \alpha_1$, $0 < \alpha_2$ and $\beta < 0.5$.

12. The method of claim 10, wherein $\alpha_1 + \alpha_2 = 2\beta$.

13. A filter that processes speech, comprising:

two or more pseudo-cepstral coefficients based on a set of linear predictive coding coefficients, a pseudo-cepstral coefficient being a parameter relating to a pseudo-cepstrum domain existing between the LPC domain and the line spectral frequency domain.

14. The filter of claim 13, wherein the filter emphasizes speech frequency components related to at least one formant based on the set of linear predictive coding coefficients and de-emphasizes speech frequency components related to at least one spectral valley based on the set of linear predictive coding coefficients.

15. The filter of claim 14, wherein the filter compensates for spectral tilt.

16. The filter of claim 14, wherein the one or more pseudo-cepstral coefficients are derived based on the formula:

$$H_S(z) \cong ( P_M(z/\alpha_1)\, Q_M(z/\alpha_2) ) / A_M(z/2\beta);$$

wherein $P_M(z) = A_M(z) + z^{-(M+1)} A_M(z^{-1})$, $Q_M(z) = A_M(z) - z^{-(M+1)} A_M(z^{-1})$ and $\alpha_1$, $\alpha_2$ and $\beta$ are control parameters, and wherein $A_M(z)$ relates to a linear predictive coding transfer function and M is the order of the linear predictive coding transfer function.

17. The filter of claim 16, wherein $0 < \alpha_1$, $0 < \alpha_2$ and $\beta < 0.5$.

18. The filter of claim 16, wherein $\alpha_1 + \alpha_2 = 2\beta$.

19. The filter of claim 16, wherein the one or more pseudo-cepstral coefficients are derived based on the formula:

$$H^{m}{}_{S}(z) \cong ( P_m(z/\alpha_1)\, Q_m(z/\alpha_2) ) / A_M(z/2\beta);$$

wherein $\alpha_1$, $\alpha_2$ and $\beta$ are control parameters, $P_m(z) = A_m(z) + z^{-(m+1)} A_m(z^{-1})$, $Q_m(z) = A_m(z) - z^{-(m+1)} A_m(z^{-1})$, and wherein $A_M(z)$ relates to a linear predictive coding transfer function and M is the order of the linear predictive coding transfer function, and wherein $A_m(z)$ is a second linear predictive coding transfer function based on $A_M(z)$, m is the order of $A_m(z)$ and $1 \le m \le M$.

20. The filter of claim 19, wherein $0 < \alpha_1$, $0 < \alpha_2$ and $\beta < 0.5$.

21. The filter of claim 19, wherein $\alpha_1 + \alpha_2 = 2\beta$.